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KIM MARSHALL
MANAGER EXAMINATION SUPPORT AND
SALES

AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION

Invention Title .... Digital reference assembly for use with

Vehicle Gauging Apparatus.

The invention is described in the following statement: ....

The present invention relates generally to the determination of the

relative alignment of structural members.

The invention has been developed primarily for use in the automotive

industry in connection with the alignment and repair of damaged vehicles

and will be described hereinafter with reference to this application.

However, it will be appreciated that the invention is not limited

to this particular field of use.

BACKGROUND OF THE INVENTION Numerous devices are known for providing

an indication of the relative misalignment of structural members and

body panels, to assist in the repair of damaged motor vehicles.

This invention relates to improved methods and equipment for providing

3 dimensional measurements of collision damaged vehicles. The

measuring method is to fit the invention onto existing tramel bars

e.g. US Patent 5507.101 and is used in a similiar method of measurement with the exception that the LCD display at the tramel sliding tape box section can be scrolled over to show each individual measurement required. This is a very desirable advantage to the operator as after each individual check a transmit button transfers the measurement taken to the computer for compiling a report. Insurance companies are now requesting some quality assurance method of confirming the damage and rectification and signing off on the report presented.

The present invention is directed to a method of providing 3D measurements of vehicles to establish any variation to data sheet specifications provided by the manufacturer or by specialist providers.

According to the invention two digital tapes and an electronic black box are attached to a tramel which is usually slieably and removably fitted to a datum bar mounted transversly across the vehicle body at selected data specification positions. The vehicle does not have to be level for 3D measurements to proceed. All components can be made from any suitable material such as metal or moulded plastics.

Although the invention has been described with reference to specific examples, it will be appreciated by those skilled in the art that the invention may be embodied in many other forms. e.g. the digital measurements may be by laser read out or potentiometer, punched holes in tape, bar code reading or forms of sound providing increment measurements that can be transmitted by RS232 or similiar cable. In another example the information can be transmitted by radio or infra red signal to the computer. In another form the tramel could be geared with slotted teeth or cable to provide the drive for potentiometer or similiar. In another form the invention could be used as a hand held tramel using one or more digital tapes

transmitting to a computer.

To assist with understanding the invention reference will now be made to the accompanying drawing which shows one examble of the invention.

Drawings defining the invention are as follows;

Fig. 1   Shows one example of the vehicle alignment digital
            gauging device according to this invention.

Fig. 1-1   Shows example of digital measuring tape with RS232
            facility.

Fig. 1-2   Shows example of electronic black box which receives and
            transmits information displays on the LCD display.

Fig. 1-3   Shows example of mounting bracket for attachment to
            tramel Fig. 1-10

Fig. 1-4   Shows example of knurled locking knob for attachment of
            assembly to Fig 1-10

Fig. 1-5   Shows example of locking knurled knob and bolt for
            attachment to Fig. 1-6

Fig 1-6   Shows example of slide or tramel Fig 1-10

Fig. 1-7   Shows example of tape blade clip on Fig 1-1 tape

Fig 1-8   Shows example of control switch on Fig 1-1

Fig 1-10   Shows example of tramel bar.

CLAIMS:

1.   A digital reference assembly adapted for operative

engagement to said measuring tramel by locking knob. The said

digital tapes have a removably mounted electronic black box with

LCD display mounted below one of the said digital tapes and each

of the said digital tapes have electronic connection to the said

black box for data collection to a computer for reference to

specifications displayed on the said LCD to provide comparative

indication of misalignment of the vehicle.

2.   The apparatus according to Claim 1 with a digital tape and

electronic black box mounted to a tramel and the said tramel

moveably attached to a dutum bar.   The assembly when combined

with tramel provides 3D measuring

3.   An apparatus according to Claim 1 or Claim 2 wherein the

same digital tape assembly is connected to a slideably adjusted

tape box of the tramel so as to provide the same movement of the

said tape box on the said tramel.

4.   An apparatus according to Claims 1.2 and 3 wherein the said

electronic black box is provided with a control switch to scrol

through data information contained in the said computer or the

said LCD with electronic memory facility.

5.   An apparatus according to Claim 1 to 4 wherein the said

electronic black box has a control switch to display the length

measurement of the digital tape in the LCD display and compare +or-

calculation to the original measurement as referred to in the said

scrol facility in the said black box.

6.   An apparatus according to Claim 1-4 wherein the said

electronic black box has a control switch to transmit the +or-

calculations of the data selected to the computer for the compilation

of report.

7.   An apparatus according to Claim 1-6 wherein the said digital

tape assembly bracket is furter supported by a slideably adjustable

fitting on the said tramel and removeable attached with a knurled

knob screw.

8.   An apparatus according to claim 1-7 wherein one of the said

digital tapes measures length the end of the said digital tape blade

slot is attached by a protruding clip fitted to the said tramel

swivel connecting fitting.

9.   An apparatus accoring to claim 1-8 wherein one to the said

digital tapes measures height the end of the said digital tape blade

slot connects to a clip mounted on the said tramel height rod

assembly.   This clip is positioned to allow for easy access to

measure points.

10.   An apparatus according to claim 1-9 wherein the said electronic

black box has an electronic connecting system to provide for RS232

cable transmission between said computer and said electronic box.

ABSTRACT

Discloses a method and apparatus for measuring variations in

vehicle bodies or frames in reference to before and after collision

damage repair.

The measuring apparatus comprises 2 digital tapes with RS232

facility mounted on a suitable bracket for 2uick attachment to

a tramel. The digital tapes are combined with an electronic

black box attached to the assembly for receiving and transmitting

and calculating data sheet information to and from a computer,

the device is light, compact and quick to fit to the tramel

assembly for providing 3D measurement for compiling vehicle

damage reports. Equipment for electronically measuring of

vehicles has to date been very expensive.

This design allows for low cost manufacture and provides measurement

to 1mm.
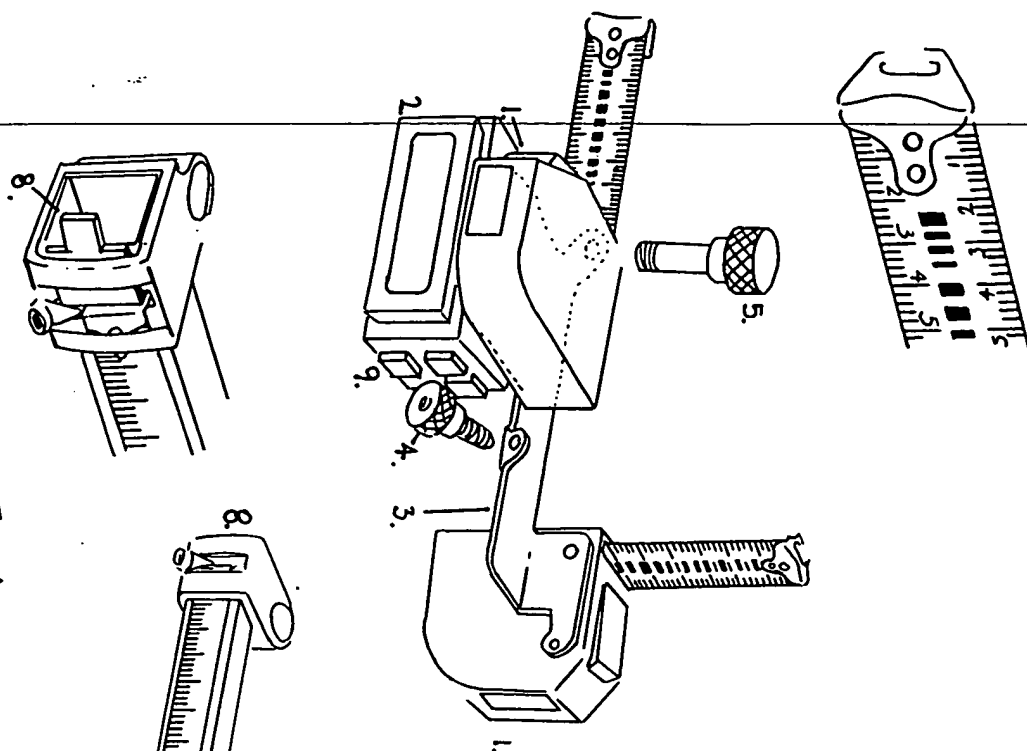
FIG 1.
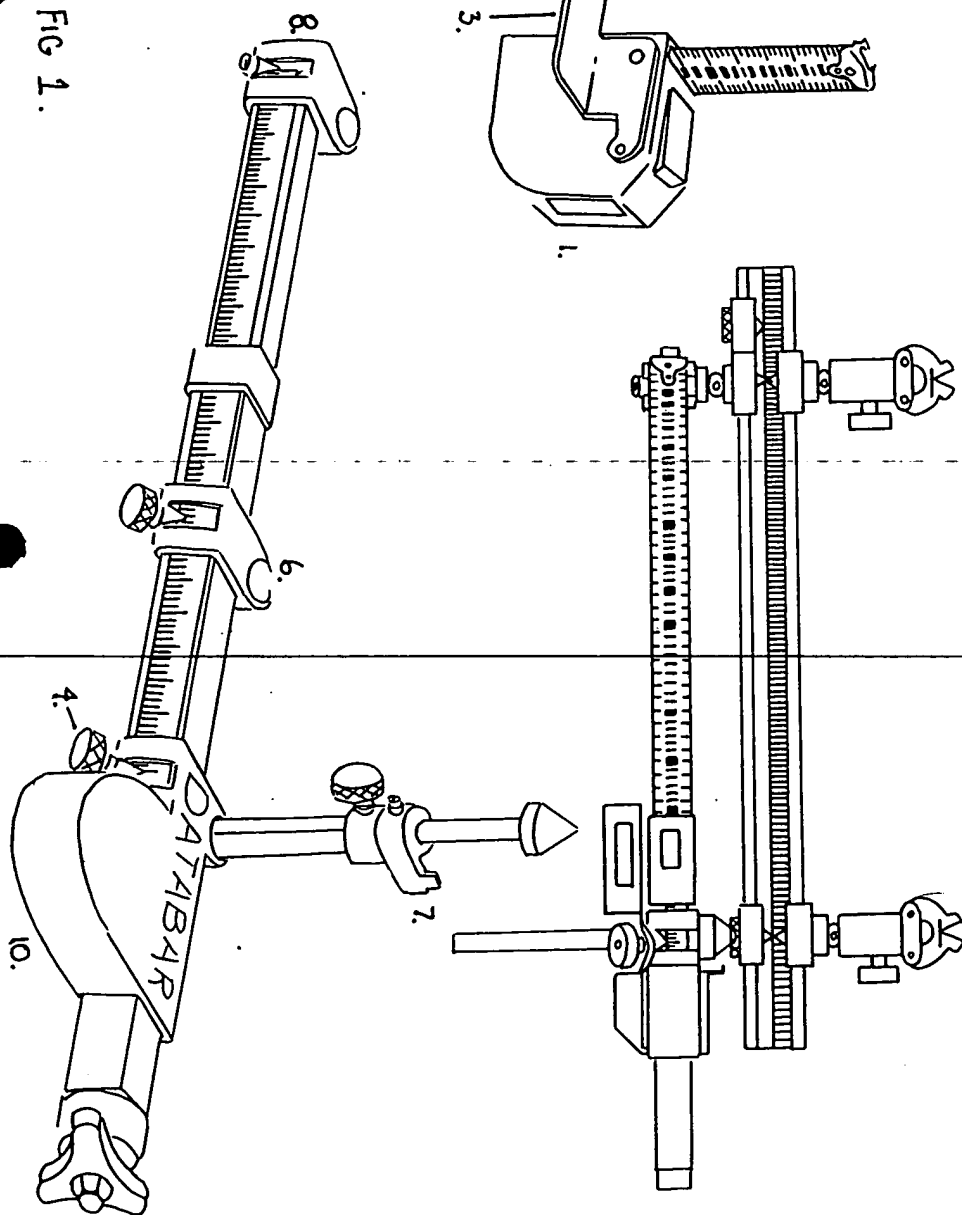
JAMES MASON

(Name of Applicant)
(BLOCK LETTERS)

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(Date)